

Release notes for ENDF/B Development photoat-056\_Ba\_000  
evaluation

**ENDF**  
**B-VII**.dev

October 13, 2016

- checkr Warnings:

1. A previous error halted parsing of the current section  
*MAT=5600, MF= 1, MT=451 (1): Parsing stopped*

```
ERROR(S) FOUND IN MAT=5600, MF= 1, MT=451
SECTION CANNOT BE CHECKED FROM SEQUENCE NUMBER      161 TO      191
```

- checkr Errors:

1. A variable is outside the allowed ENDF range  
*MAT=5600, MF= 1, MT=451 (0): Variable range*

```
ERROR(S) FOUND IN MAT=5600, MF= 1, MT=451
MOD =      3 OUT OF RANGE      0 -      1      RECORD NUMBER      161
```

2. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=501 (0): Directory (b)*

```
ERROR(S) FOUND IN MAT=5600, MF=23, MT=501
SECTION 23/501 NOT IN DIRECTORY      RECORD NUMBER      193
```

3. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=502 (0): Directory (b)*

```
ERROR(S) FOUND IN MAT=5600, MF=23, MT=502
SECTION 23/502 NOT IN DIRECTORY      RECORD NUMBER      1007
```

4. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=504 (0): Directory (b)*

```
ERROR(S) FOUND IN MAT=5600, MF=23, MT=504
SECTION 23/504 NOT IN DIRECTORY      RECORD NUMBER      1399
```

5. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=515 (0): Directory (b)*

```
ERROR(S) FOUND IN MAT=5600, MF=23, MT=515
SECTION 23/515 NOT IN DIRECTORY      RECORD NUMBER      1440
```

6. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=516 (0): Directory (b)*

```
ERROR(S) FOUND IN MAT=5600, MF=23, MT=516
SECTION 23/516 NOT IN DIRECTORY      RECORD NUMBER      1474
```

7. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=517 (0): Directory (b)*

- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=517 | RECORD NUMBER | 1527 |
| SECTION 23/517 NOT IN DIRECTORY           |               |      |
8. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=522 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=522 | RECORD NUMBER | 1567 |
| SECTION 23/522 NOT IN DIRECTORY           |               |      |
9. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=534 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=534 | RECORD NUMBER | 1923 |
| SECTION 23/534 NOT IN DIRECTORY           |               |      |
10. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=535 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=535 | RECORD NUMBER | 1944 |
| SECTION 23/535 NOT IN DIRECTORY           |               |      |
11. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=536 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=536 | RECORD NUMBER | 1969 |
| SECTION 23/536 NOT IN DIRECTORY           |               |      |
12. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=537 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=537 | RECORD NUMBER | 1995 |
| SECTION 23/537 NOT IN DIRECTORY           |               |      |
13. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=538 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=538 | RECORD NUMBER | 2021 |
| SECTION 23/538 NOT IN DIRECTORY           |               |      |
14. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=539 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=539 | RECORD NUMBER | 2049 |
| SECTION 23/539 NOT IN DIRECTORY           |               |      |
15. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=540 (0): Directory (b)*

- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=540 | RECORD NUMBER | 2081 |
| SECTION 23/540 NOT IN DIRECTORY           |               |      |
16. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=541 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=541 | RECORD NUMBER | 2114 |
| SECTION 23/541 NOT IN DIRECTORY           |               |      |
17. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=542 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=542 | RECORD NUMBER | 2149 |
| SECTION 23/542 NOT IN DIRECTORY           |               |      |
18. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=543 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=543 | RECORD NUMBER | 2186 |
| SECTION 23/543 NOT IN DIRECTORY           |               |      |
19. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=544 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=544 | RECORD NUMBER | 2217 |
| SECTION 23/544 NOT IN DIRECTORY           |               |      |
20. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=545 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=545 | RECORD NUMBER | 2252 |
| SECTION 23/545 NOT IN DIRECTORY           |               |      |
21. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=546 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=546 | RECORD NUMBER | 2289 |
| SECTION 23/546 NOT IN DIRECTORY           |               |      |
22. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=547 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=547 | RECORD NUMBER | 2351 |
| SECTION 23/547 NOT IN DIRECTORY           |               |      |
23. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=550 (0): Directory (b)*

- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=550 | RECORD NUMBER | 2412 |
| SECTION 23/550 NOT IN DIRECTORY           |               |      |
24. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=551 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=551 | RECORD NUMBER | 2451 |
| SECTION 23/551 NOT IN DIRECTORY           |               |      |
25. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=552 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=552 | RECORD NUMBER | 2494 |
| SECTION 23/552 NOT IN DIRECTORY           |               |      |
26. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=23, MT=559 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=23, MT=559 | RECORD NUMBER | 2537 |
| SECTION 23/559 NOT IN DIRECTORY           |               |      |
27. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=27, MT=502 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=27, MT=502 | RECORD NUMBER | 2588 |
| SECTION 27/502 NOT IN DIRECTORY           |               |      |
28. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=27, MT=504 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=27, MT=504 | RECORD NUMBER | 2640 |
| SECTION 27/504 NOT IN DIRECTORY           |               |      |
29. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=27, MT=505 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=27, MT=505 | RECORD NUMBER | 2694 |
| SECTION 27/505 NOT IN DIRECTORY           |               |      |
30. Missing a section in directory so your directory is messed up. This error will break everything else  
*MAT=5600, MF=27, MT=506 (0): Directory (b)*
- |   |               |      |
|---|---------------|------|
| ERROR(S) FOUND IN MAT=5600, MF=27, MT=506 | RECORD NUMBER | 2846 |
| SECTION 27/506 NOT IN DIRECTORY           |               |      |

• **fudge-4.0 Warnings:**

1. generic warning message  
*reaction label 0: Ba + gamma [coherent] / Product: gamma (Error # 0): Warning*

WARNING: coherentScattering is not a valid distribution component for 2-body reaction

2. FIXME: Generic fudge unimplemented message  
*reaction label 0: Ba + gamma [coherent] / Product: gamma (Error # 2): Generic unimp (c)*

WARNING: Checking not yet implemented for pointwise type data

3. generic warning message  
*reaction label 1: Ba + gamma [incoherent] / Product: gamma (Error # 0): Warning*

WARNING: incoherentScattering is not a valid distribution component for 2-body reaction

4. FIXME: Generic fudge unimplemented message  
*reaction label 1: Ba + gamma [incoherent] / Product: gamma (Error # 2): Generic unimp (c)*

WARNING: Checking not yet implemented for piecewise type data

5. Cross sections do not correctly sum up properly according to an ENDF (or equivalent) sumrule  
*summedReaction label 22: total (Error # 0): Sumrule*

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 100.00%

6. Cross sections do not correctly sum up properly according to an ENDF (or equivalent) sumrule  
*summedReaction label 24: photoelectric absorption (Error # 0): Sumrule*

WARNING: Cross section does not match sum of linked reaction cross sections! Max diff: 99.38%

• fudge-4.0 Errors:

1. Calculated and tabulated thresholds don't agree  
*reaction label 0: Ba + gamma [coherent] / Cross section: (Error # 0): Threshold mismatch*

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1. eV!

2. 2-body reaction not in center-of-mass frame  
*reaction label 0: Ba + gamma [coherent] / Product: gamma (Error # 1): 2-body not in COM*

WARNING: 2-body reaction not in center-of-mass frame!

3. Calculated and tabulated thresholds don't agree  
*reaction label 1: Ba + gamma [incoherent] / Cross section: (Error # 0): Threshold mismatch*

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1. eV!

4. 2-body reaction not in center-of-mass frame  
*reaction label 1: Ba + gamma [incoherent] / Product: gamma (Error # 1): 2-body not in COM*

WARNING: 2-body reaction not in center-of-mass frame!

5. Energy range of data set does not match cross section range  
*reaction label 1: Ba + gamma [incoherent] / Product: gamma / Distribution incoherent*  
*Scattering - piecewise: (Error # 0): Domain mismatch (a)*  
  
WARNING: Domain doesn't match the cross section domain: (0.0 -> 1000000000.0) vs (1.0 -> 1e+11)
6. Calculated and tabulated thresholds don't agree  
*reaction label 2: e- + e+ + Ba [electron field] / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 2.044e6 eV!
7. Calculated and tabulated thresholds don't agree  
*reaction label 3: e- + e+ + Ba [nuclear field] / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1.022e6 eV!
8. Calculated and tabulated thresholds don't agree  
*reaction label 4: e- + Ba1s1/2 / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 37449. eV!
9. Calculated and tabulated thresholds don't agree  
*reaction label 5: e- + Ba2s1/2 / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 5960.8 eV!
10. Calculated and tabulated thresholds don't agree  
*reaction label 6: e- + Ba2p1/2 / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 5630.3 eV!
11. Calculated and tabulated thresholds don't agree  
*reaction label 7: e- + Ba2p3/2 / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 5243.4 eV!
12. Calculated and tabulated thresholds don't agree  
*reaction label 8: e- + Ba3s1/2 / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1273.4 eV!
13. Calculated and tabulated thresholds don't agree  
*reaction label 9: e- + Ba3p1/2 / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1132.2 eV!
14. Calculated and tabulated thresholds don't agree  
*reaction label 10: e- + Ba3p3/2 / Cross section: (Error # 0): Threshold mismatch*  
  
WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1057. eV!
15. Calculated and tabulated thresholds don't agree  
*reaction label 11: e- + Ba3d3/2 / Cross section: (Error # 0): Threshold mismatch*

- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 806.64 eV!
16. Calculated and tabulated thresholds don't agree  
*reaction label 12:  $e^- + Ba3d5/2$  / Cross section: (Error # 0): Threshold mismatch*
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 790.49 eV!
17. Calculated and tabulated thresholds don't agree  
*reaction label 13:  $e^- + Ba4s1/2$  / Cross section: (Error # 0): Threshold mismatch*
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 256.35 eV!
18. Calculated and tabulated thresholds don't agree  
*reaction label 14:  $e^- + Ba4p1/2$  / Cross section: (Error # 0): Threshold mismatch*
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 204.21 eV!
19. Calculated and tabulated thresholds don't agree  
*reaction label 15:  $e^- + Ba4p3/2$  / Cross section: (Error # 0): Threshold mismatch*
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 188.35 eV!
20. Calculated and tabulated thresholds don't agree  
*reaction label 16:  $e^- + Ba4d3/2$  / Cross section: (Error # 0): Threshold mismatch*
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 102.16 eV!
21. Calculated and tabulated thresholds don't agree  
*reaction label 17:  $e^- + Ba4d5/2$  / Cross section: (Error # 0): Threshold mismatch*
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 99.45999999999999 eV!
22. Calculated and tabulated thresholds don't agree  
*reaction label 18:  $e^- + Ba5s1/2$  / Cross section: (Error # 0): Threshold mismatch*
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 38.39 eV!
23. Calculated and tabulated thresholds don't agree  
*reaction label 19:  $e^- + Ba5p1/2$  / Cross section: (Error # 0): Threshold mismatch*
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 24.3 eV!
24. Calculated and tabulated thresholds don't agree  
*reaction label 20:  $e^- + Ba5p3/2$  / Cross section: (Error # 0): Threshold mismatch*
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 22. eV!
25. Calculated and tabulated thresholds don't agree  
*reaction label 21:  $e^- + Ba6s1/2$  / Cross section: (Error # 0): Threshold mismatch*
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 4.64 eV!
26. Calculated and tabulated thresholds don't agree  
*summedReaction label 22: total / Cross section: (Error # 0): Threshold mismatch*
- WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1. eV!



27. Calculated and tabulated thresholds don't agree  
*summedReaction label 23: pair product / Cross section: (Error # 0): Threshold mismatch*

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 1.022e6 eV!

28. Calculated and tabulated thresholds don't agree  
*summedReaction label 24: photoelectric absorption / Cross section: (Error # 0): Threshold mismatch*

WARNING: Calculated and tabulated thresholds disagree: 1.e-5 eV vs 4.64 eV!

• **xsectplotter** Warnings:

1. Encountered runtime warning in xsectplotter or Fudge or matplotlib  
*Error: RuntimeError*

stderr while processing crossSection

/usr/local/lib/python2.7/site-packages/matplotlib-1.3.1-py2.7-linux-x86\_64.egg/matplotlib/pyplot.py:412: RuntimeWarning: ... [3 more lines]